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Improving the ALWTRP Co-occurrence Model:

Project Update

April 3, 2018

Presentation to:

Atlantic Large Whale Take Reduction Team
Subgroup 1 – Whale Release Rope

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Project Background: Overview

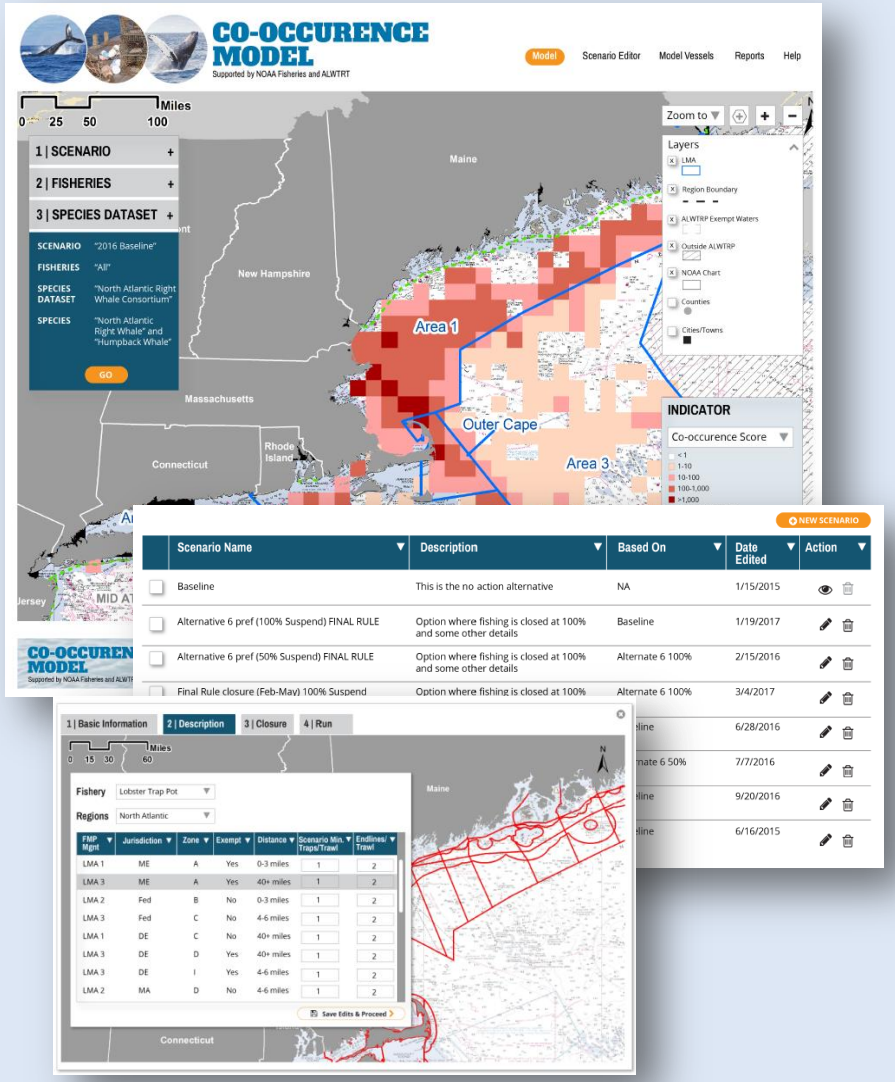
- Co-occurrence model last applied to support development of 2014 vertical line rule and subsequent amendments
  - Data substantially out of date
  - Built on aging software platform - MS Access 2003 /ArcGIS 10
  - Lacked flexibility to easily incorporate new data
  - Faced size and performance constraints
- Met with ALWTRT monitoring work group in May 2016 to discuss:
  - Phased plan for updating the model
  - Efforts to standardize data on fishing effort (potential reporting requirement, under development)
  - Improving use of available data on species distribution (e.g., incorporating opportunistic sightings data into the model)
- Completed internal needs assessment with NMFS staff in November 2016

Recommendations from Needs Assessment

- Update to web-based interface to improve use and performance
- Retain existing risk indicators and modeling capabilities
- Establish standards for data inclusion
- Expand geographic scope – North Atlantic Canada
- Improve resolution for “other trap/pot” and emerging fisheries
- Improve reporting capabilities
- Provide connections to communities
- Support broader application (e.g., ESA Section 7 consultations, FMPs)
- Long-term: develop predictive modeling capabilities

Current Focus: New Platform and Data

- Developed Architecture and Design Plan
  - Preliminary database design
  - Look and feel, wireframes
- NMFS provided initial funding to support:
  - Development of the online application
  - Update of baseline data
    - Federal/state fisheries data
    - Gear configuration assumptions
    - Whale sightings data
  - Focused on base maps, established indicators, calculations



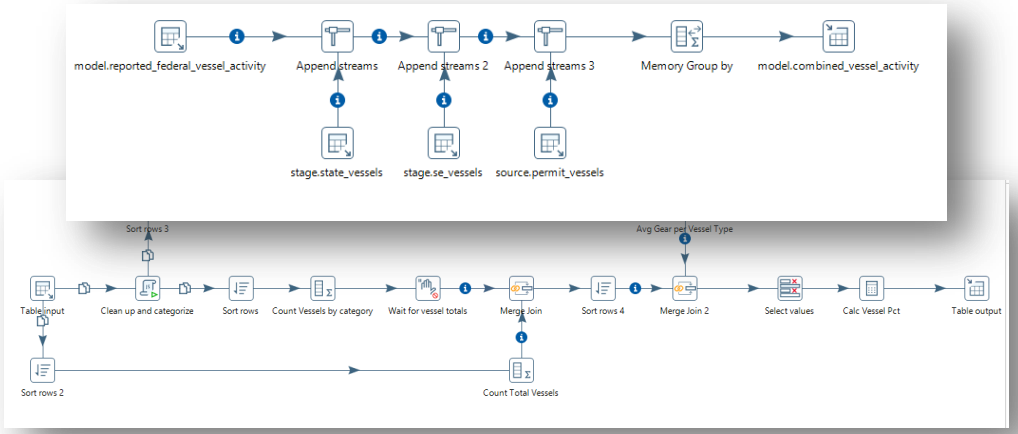
Status: Data Collection Effort

- Federal commercial fishing data
  - Activity – 2016 VTR / NE Permit / SE Logbook
  - Gear Configuration – ALWTRP/prior assumptions in offshore waters
- State commercial fishing data
  - Varied sources, but improving
  - Mainly 2016, some 2015 (see chart)
- Whale sightings data
  - Bob Kenney provided updates from NARWC database through 2017
  - Right, humpback, and fin whales
  - Opportunistic sightings
  - Effort-corrected (SPUE)
  - Includes data on sightings/surveys in Canadian waters currently available to NARWC

	Activity	Gear
State	Year	Year
ME	2016	2015
NH	2015	2015
MA	2015	2015
RI	2015	2015
CT	2016	2016
NY	2016	2016
NJ	2016	2016
DE	2016	2016
MD	2016	2016
VA	2016	2016
NC	2016	2016
SC	2016	2016
GA	2018 (est.)	2018
FL	2016	2016

Status: Model Development Effort

- Created internal hosting environment to support development
- Developed base maps and interim user interface
- Developed methods to import vessel activity, gear configuration, and whale data
  - Automated imports for key New England states: ME, NH, MA, RI
  - Established ETL process to incorporate data into the model
  - Expanded geographic grid to include Canadian waters
- Implemented calculations for key indicators
  - Vessel counts
  - Endline counts
  - SPUE scores
  - Co-occurrence scores



Demonstration of Updated Model

- Demo!
- Caveats
  - **All figures are DRAFT – QC is currently in progress**
  - Interim user interface
    - Added some basic selections to get things going
    - Not meant to represent the final design
  - Performance may lag at times – we will spend time during QC period working on performance issues

Remaining Tasks

- Complete QC of baseline data and outputs
- Improve performance
- Develop an illustrative report – suggestions:
  - Summary of indicators by region based on selected time period
  - PDF maps for selected time periods and indicators
  - Reports of potential interest to ALWTRT working groups
  - Reports that would assist NMFS with PRA/ICR submissions

Looking Forward

- Draw on needs assessment to identify next steps in model development
  - Scenarios (e.g., closures, trawling up/down, other changes in gear requirements)
  - Interface improvements
  - Expanded capabilities (e.g., "identify" tool)
- Adapt architecture and design plan to meet NMFS' evolving needs
- Consider additional capabilities that would assist NMFS and the TRT; e.g.:
  - Identifying areas to test new fishing technologies
  - Incorporating "degree of hazard" measures (e.g., differences in vertical line breaking strength) as risk indicators

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Questions?

North Atlantic Right Whale *(Eubalaena glacialis)*
Credit: Georgia Department of Natural Resources (GADNR), Permit 15488